discovery, which is in itself an interesting fact, and will, no doubt, lead to an acquaintance with many new forms of these elegant little Molluscoids, as it has already added a new area beyond the hitherto known limit of their geographical distribution.

I remain, Gentlemen,
Your obedient Servant,
C. D'Oyly H. Aplin.

Geological Survey Office, Melbourne,
Sept. 24, 1860.

HELIX MOUHOTI.

To the Editors of the Annals of Natural History.

Gentlemen,—At p. 203 of the present volume of your Journal you did me the favour to insert the descriptions of two new land-shells from Cambojia. For one of them (*Helix Mouhoti*) I beg permission to alter the name to *Helix Cambojiensis*, the name *Mouhoti* having been assigned already by Dr. Pfeiffer to another species of *Helix*.

I am, Gentlemen, Yours, &c.,
Lovell Reeve.

Nov. 5, 1860.

CORBULA ROSEA.

To the Editors of the Annals of Natural History.

Gentlemen,—By inserting the enclosed in your 'Annals,' you will much oblige

Your obedient Servant,
Ben. Wm. Adams.

1860. July 30th and August 2nd. When dredging in Dalkey Sound, I discovered, off the south-west of the island, on a gravelly bottom, forty-one live specimens of *Corbula rosea*. I have carefully compared them with Forbes and Hanley's description, and also shown them to Dr. Farran of Feltrim, so that no doubt exists as to their identity; and all doubt as to their being a British species is now removed.

The Rectory, Cloghrar,
Nov. 1, 1860.

On the Morphology of the Compound Eyes in the Arthropoda.
By E. Claparède.

In order to complete the important investigations already made upon the histology of the compound eyes of insects, the author has undertaken the study of the evolution of these organs. In those insects with a complete metamorphosis which possess compound eyes, it is well known that the larvæ are either blind or furnished only with simple eyes. It is therefore in the pupæ that the genesis of the compound eyes must be studied.

The author soon found that the investigation of the eyes during their formation threw an unexpected light upon their histological composition. In fact, at first a multitude of elements are distinct

and easy of investigation, which subsequently become soldered together, indistinct, and unfit for investigation. Each of the divisions of the eye corresponding with a facet of the cornea is formed by a certain number of perfectly definite cells, of which the greater part are arranged in fours. Thus in the Peacock Butterfly (*Vanessa Io*) there are seventeen cells, of which sixteen are in fours. These cells are arranged in the following manner. Four of them form a globular mass, flattened at its upper part, which is adherent to the cornea; these are the four cells which secrete the corresponding facet of the cornea, which proves, like all chitinous membranes, to be an extracellular production. The four nuclei of these cells are still easily recognized in the adult, in which they are adherent to the cornea. Each of these cells secretes in its interior a very refractive globule, which is nothing but the rudiment of one quarter of the crystalline body. In fact, this body, which is single in the adult, is always (in all Insects and Crustacea) composed originally of four distinct parts, which subsequently become united. After these four cells come four others, forming a pyriform mass. This is the rudiment of the nervous baton, which will afterwards attain much greater dimensions, at a period when it will be no longer possible to recognize the four cells composing it, although its production at the expense of these four cells is still indicated by the four-sided prismatic form which it presents in the adult. The point of the pyriform mass rests upon a large single cell, which the author calls the fundamental cell (*Grundzelle*), because it forms the base of the eye properly so called. This cell itself is placed at the extremity of a nervous filament arising from the optic ganglion, and the nine cells form the axis of the optical element corresponding with a single facet. The other eight are destined subsequently to become its enveloping coat. Four of them are placed in the constriction which separates the mass in which the four quarters of the crystalline body are formed from the pyriform mass placed below it; the others in that separating the pyriform mass from the fundamental cell. During evolution the former always become filled with a pigment, the colour of which, in many species, is different from that of the pigment deposited at the same time in the top of the nervous baton.

Sometimes the number of cells composing the optical element is much greater, but this multiplication affects exclusively the cells of the enveloping coat. This takes place, for example, in *Æschna grandis*, in which the number of cells of the envelopes properly so called is raised from four to thirty-two, and the pigment-cells are also greatly increased in number.

In a physiological point of view, the author shows that the theory of vision in the Arthropoda, as established by Müller, cannot be sustained, however ingenious it may be. In fact, if this theory were well founded, those insects which have only a small number of facets in the cornea (such as the Ants, which have only fifty) would be utterly incapable of perceiving images. Even those which have the greatest number would be extremely short-sighted; and M. Claparède calculates that a Bee would be unable to discern the opening

of its hive at the distance of a few feet. Now everyone knows that the sight of a Bee is much longer than that. The author concludes that each element corresponding with a facet must be regarded as a complete eye. But it is clear that in this case the principle of identical points does not exist for these eyes, and that we must suppose the animal to possess the power of perceiving impressions in the direction of the rays which strike each facet.—*Siebold und Kölliker's Zeitschrift*, 1859, p. 191; *Bibl. Univ.* June 20, 1860; *Bull. Sci.* p. 161.

Results of Soundings in the North Atlantic.

To the Editors of the Annals of Natural History.

Gentlemen,—During the recent survey of the proposed North Atlantic Telegraph route between Great Britain and America, conducted on board H.M.S. Bulldog, some important facts have revealed themselves, from which it would appear that all preconceived notions as to the bathymetrical limits whereby animal life is circumscribed in the sea are more or less erroneous. The mighty ocean contains its hidden animate as well as inanimate treasures; and it is probable that, under proper management, the former may speedily be brought to light, whatever may be the ultimate fate of the latter. In short, we are almost warranted, from the evidence already at our command, in inferring that, although hitherto undetected, a submarine fauna exists along the bed of the sea, and that means and opportunities are alone wanting to render it amenable to the scrutiny of the naturalist.

In sounding midway between Greenland and the north-west coast of Ireland, at 1260 fathoms—that is, at a mile and a half below the surface, in round numbers—several *Ophiocomæ* were brought up, clinging by their long spinous arms to the last fifty fathoms of line. They were alive, and continued to move their limbs about energetically for upwards of a quarter of an hour after leaving their native element. The species seems allied to *O. granulata*, Link, the specimens varying from 2 to 5 inches across the rays. Lest it be supposed that these *Ophiocomæ* were floating or drifting in the water at any point intermediate between the surface and bottom, it is only necessary to mention that the determination of depth having been effected by a separate operation and apparatus, the more tedious process of bringing up the sample of bottom is entered on; and, owing to the difficulty of finding out the exact moment at which ground is struck, a considerable quantity of line in excess of the already ascertained depth is usually paid out. This quantity therefore rests on the bottom for a short time until the sounding-machine is again hauled up. The *Ophiocomæ* were adherent to this last fifty fathoms only, and were not secured at all by the sounding-machine. It is quite clear therefore that they were met with on the surface-layer of the deposit. The distance from the nearest point of Greenland to the spot at which this sounding was made is 500 miles, and to the nearest point of Iceland (namely an isolated rock called the 'Blinde Skier,' about seventy miles from the mainland) 250 miles; so that,